from the Azores to the Ural Mountains, to observe at the same point of time in spite of differences of longitude and consequently of local time, in order that there may be no dawdling in the central offices about the reception of the telegraphic reports. Into this international arrangement any change of practice in time keeping introduces confusion. For these reasons the Meteorological Office obtained permission under the [Summer-Time] act to retain Greenwich time for the hours of observation at its observatories and stations, but by doing so its reports were belated *nominally* by an hour and too late for the regular hours of delivery and postage. Special advance copies of an abbreviated report were manifolded and distributed. With the new hours at post-offices it became impossible to communicate the results of the evening observations except to privileged offices, and it was equally impossible to maintain the evening reports from the health resorts at the usual hour. They had to be made an hour earlier.[2]

Two points raised by the experience of Summer-time are brought out, added to other experiences of work for the war. One is of very general bearing, namely, the considerations that have led the associated countries to select a morning hour like 7h, G.M.T., for the chief meteorological effort of the day. It is not quite early enough for our [British] "evening" papers, and yet it is an uncomfortable hour in winter for office work. Now that the place of meteorological work in the life of the community is well established, the question might be reconsidered by the countries which are associated in meteorological work, after the war.

The other is of a more domestic character. The necessity for keeping the whole number of observers informed as to what action should be taken in regard to the change of clocks resolved itself into the need of regular opportunity of communication. Such communication is obviously a useful agency in the organization of a system which includes many hundreds of independent but cooperating observers distributed over the three kingdoms and associated only through the Office. In consequence, a four-page monthly circular has been set on foot for the purpose and has been found useful in many ways.[3]

"SUMMER TIME" OR DAYLIGHT SAVING IN OTHER COUNTRIES.

On another page appear quotations from the Annual Report of the Meteorological Committee of Great Britain setting forth the opinions and experience of the Meteorological Office during 1916–17 with "summer time" in Great Britain.

The British Secretary of State for the Home Department appointed, on September 20, 1916, a committee "to inquire into the social and economic results of the Summer Time act, 1916, and to consider (1) whether it is advisable that Summer Time should be reintroduced in 1917." This committee submitted its report on February 22, 1917 (London, 1917), and from a copy available at the central office the following extracts of special interest to the Weather Bureau are reprinted. The original numbering for the paragraphs has been retained.

Meteorological Work.

70. The operation of Summer Time last year [1916–17] appears to have introduced some elements of uncertainty and difficulty into the work of the Meteorological Office. Sir Napier Shaw, the Director of the Office, supplied us with an interesting statement on the subject, the most important features of which we give below.

71. The work of the Meteorological Office, we are informed, has to be regarded from two points of view, viz:

(1) The *current daily work* of collecting information by telegraph from about 100 observatories and stations in the United Kingdom, on the Continent and the Atlantic Islands, and distributing reports, storm warnings, etc., based on this information, to various quarters; and

(2) The *public record*, which involves collection by the week or the month of (mostly voluntary) observations from 500 stations, in addition to the 100 official stations above mentioned.

72. The *current daily work* was continued at the same hours as previously, by Greenwich time, in accordance with the proviso in Section I (5) of the Summer-Time act. Consequently, as the messages from the stations were always telegraphed at the last possible moment before the closing of the post offices, the hour for sending them had to be changed, thus spoiling the continuity of the records.

Moreover the whole daily output of the office's reports, forecasts and storm warnings was nominally an hour late. So far as storm warnings are concerned the delay of an hour would have been fatal, since the country post offices were closed before the reports could be prepared and the hoisting stations could not therefore have been reached by telegraph.

No inconvenience, however, actually resulted in this respect in 1916 because, by request of the Admiralty, the general issue of warnings to coast stations had already been suspended on other grounds.

The distribution of the daily weather reports by early post (1:30 p. m. at the G. P. O.) had to be abandoned.

The opinion of the French Service was taken as to *the possibility of accelerating the whole service permanently* by an hour, but the proposal was not favorably received.

However, summing up the general effect of Summer Time on the current daily work, Sir Napier Shaw observes that "the inconveniences were as far as possible overcome without serious complaint from the services or the various naval and military establishments for which the information was collected."

73. As regards *the public record*, Sir Napier Shaw remarks that it is too soon to form an official opinion. In spite of very careful instructions a great deal of confusion arose with the observers as regards the hours at which the observations were made, and the continuity of many series of observations has been interrupted. "My impression is," he says, "that there is now no possibility of placing beyond dispute the exact time of any event, except those dealt with by telegraph, which occurred between May 21 and September 30. A future historian may find it impossible to fix the exact hour of the battle of Jutland. How many discontinuities, intentional or unintentional, there are in the records, will only be known when we summarize the results for the year, and

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[2] For an account of the organization of the Meteorological Office, see MONTHLY WEATHER REVIEW, 1915, **43**: 449, ffg.—C. A. jr.,

[3] *Great Britain. Meteorological Office Circular.* The attentive reader will have noticed several quotations from this circular in recent issues of the MONTHLY WEATHER REVIEW. The circular is of the page size of our own Bureau Topics and Personnel.

Beside the advices necessary for the cooperative observers and the various notes relating to Meteorological Office personnel, the circular usually contains several paragraphs on selected interesting current observations and frequently abstracts some publication of interest to the force. The value of the circular justifies a slightly higher grade of paper than that now employed, thereby insuring greater durability of the interesting records it carries.—C. A., jr.

how far they will affect the value of the results to be obtained from the observations will not be disclosed until we know what questions the services want us to answer. From the scientific point of view the discontinuity of hour introduces a defect which is fatal and for which there is no remedy."

74. Sir Napier Shaw concludes: "We have got through the immediate difficulties of Summer Time by making special provision of one sort or other to meet complaints addressed to us. For the future, if the experiment of 1916 is repeated, the proper course will be again to keep continuity as far as possible and make good the requirements of the service by whatever special provision we can devise and carry out."

75. We do not feel that we can add anything to Sir Napier Shaw's statement; but we may, perhaps, express the hope that the proposal for a permanent acceleration by one hour of the international service of weather reports (which we are told is not impossible to carry out, although it involves certain difficulties) will receive further consideration.

Foreign countries.

[The replies to circulars sent to foreign countries, and information supplied by the War Trade Intelligence Department, indicate that]—

78. Daylight-saving schemes were adopted last year [1916–17] by France, Holland, Denmark, Norway, Sweden, Italy, Portugal, and in Germany and Austria. The schemes were started on various dates from the 1st of May onward, and terminated for the most part at the end of September, the only exception apparently being in Portugal, where summer time was continued until the 31st of October. The variation from normal time seems to have been one hour in every case.

79. [According to the reports Great Britain (excluding Ireland), France, Holland, Portugal, Germany, and Austria, favored repeating the experiment in 1917; Denmark and Sweden were apparently undecided; Italy and Spain yielded no information.]

83. [Daylight-saving schemes have been adopted in Australia and Tasmania, and locally in Canada (Saint John, N. B.); New Zealand rejected the bill, and the Union of South Africa has not adopted a scheme.]

Conclusion.

84. We recommend, therefore, that Summer Time should be reintroduced in 1917 and in subsequent years.

RAINFALL OF 1917 IN THE BRITISH ISLES.

[*Reprinted from* Nature, London, Feb. 14, 1918, 100: 472.]

The rainfall of 1917 in the British Isles was about the average, but large areas of deficient rainfall occurred in all parts of the country. According to Symons's Meteorological Magazine for January (vol. lii, No. 624) the most important of these areas were in the center, part of the north, and the southwest of England, all of which had deficiencies of more than 10 per cent. The east midlands of Scotland were also dry, the deficiency exceeding 20 per cent over an area extending from the Firth of Forth to the Grampians. The southern half of Ireland and the extreme north and the south of Wales had a rainfall below the average. Unusually wet regions included the west and north of Scotland, the north of Ireland, the Yorkshire Wolds, Cardigan Bay, and the London district. August, October, and November showed a general excess of rainfall over the country. May was rather wet in Ireland and June in England, especially locally. February and December were unusually dry, and there was, on the whole, a general deficiency of rainfall during the first seven months of the year.

WEATHER AND HONEY PRODUCTION.[1]

By L. A. KENOYER.

[*Abstract reprinted* from U. S. Experiment Station Record, Washington, 1917, 37:854.]

The author here reports studies, based on daily records for 29 years, kept by a successful beekeeper, as to the weight of a hive of bees and the accompanying weather conditions. These show that changes in the weather exert a marked influence on the production of honey. The conclusions drawn are as follows:

"June yields 56 per cent of the annual hive increase and July about half of the remainder. A large June increase is indicative of a good honey year. There is an evident alternation between good and poor years. A good year has a rainfall slightly above the average, the honey season being preceded by a fall, winter, and spring with more than the average precipitation. A rainy May scarcely fails to precede a good honey season. South wind seems favorable and east wind unfavorable.

"The yield shows a gradual depression preceding and a gradual increase until about the fourth day following a rainy day, after which it remains fairly constant until about the fourteenth day following the rain. Good honey months average slightly higher in temperature than poor, this being especially true of the spring and fall months. Clear days are favorable to production of honey. Yield is best on days having a maximum of 80 to 90° F. and a wide daily range of temperature is favorable for a good yield. A low barometer is also favorable for good yield. The fluctuations in yield for a producing period seem to be closely correlated with the temperature range and the barometric pressure, acting jointly. A cold winter has no detrimental effect on the yield of the succeeding season, but a cold March reduces it. A winter of heavy snowfall is in the great majority of cases followed by a larger honey yield."

FORMER WEATHER BUREAU OFFICIAL IN NAVAL RESERVE FLYING CORPS.

A communication from the Office of Naval Operations, United States Navy, dated March 4, 1918, informs the Weather Bureau that former Professor of Meteorology and District Forecaster Alexander George McAdie, recently of Harvard University and Blue Hill Observatory, was enrolled in the Naval Reserve Flying Corps with the rank of lieutenant commander, on February 1, 1918, and is shortly to go abroad in connection with the meteorological branch of the Naval Air Service.

Lieutenant Commander McAdie's name is therefore to be added to the list of meteorologists given by Prof. R. De C. Ward, at the top of page 592 in the REVIEW, December, 1917. All who had the pleasure of an acquaintance with former Prof. McAdie will surely wish him great success in his new undertaking.

[1] See Bulletin, Iowa State experiment station, 1917, 169:15–26, fig.